

# Weather in Action

## Assessment and Student Activity Masters





## Preliminary Test

**Directions:** Fill in the blank with the correct word. A list of possible answers is provided at the bottom of the page.

1. Clouds result from the \_\_\_\_\_ of water vapor.
2. \_\_\_\_\_ clouds indicate fair weather.
3. Cirrus clouds are made of \_\_\_\_\_ crystals.
4. Moisture falling from a cloud to the ground is known as \_\_\_\_\_.
5. Condensation \_\_\_\_\_ are small particles in the air on which water vapor condenses.
6. Precipitation occurs when the \_\_\_\_\_ in a cloud becomes too heavy.
7. \_\_\_\_\_ is partially frozen rain
8. A continental \_\_\_\_\_ air mass forms over cool, dry land.
9. A \_\_\_\_\_ is a boundary between two types of air masses.
10. Scientists who study the weather are called \_\_\_\_\_.

moisture  
meteorologists  
precipitation  
polar  
front  
sleet

ice  
nuclei  
dry air  
condensation  
cumulus  
rain



# Preliminary Test

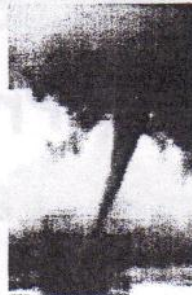
**Directions:** Decide whether the answer is True (T) or False (F).

11. Tornadoes tend to indicate good weather. T F
12. Constant movement of air and moisture in the atmosphere are factors leading to a change in weather. T F
13. Air masses have the same characteristics of the surface over which they form. T F
14. A continental tropical air mass forms off the coast of Florida. T F
15. Cold fronts tend to be slow moving. T F
16. Low pressure systems may cause large snow and rain storms. T F
17. A stationary front occurs when fronts stop moving, or stall. T F
18. Hurricanes form over cold ocean waters due to air rising rapidly and then cooling. T F
19. Tornadoes are storms consisting of swirling areas of very intense, low pressure. T F
20. Condensation is any form of moisture that falls to the ground from a cloud. T F



# Video Review

**Directions:** During the course of the program, answer the "You Decide" questions as they are presented in the video. Answer the Video Quiz questions at the end of the video.



## You Decide:

A. What is formed when water droplets gather together?

Answer \_\_\_\_\_

B. What are some other forms of precipitation?

Answer \_\_\_\_\_

C. What are some of the characteristics of storms?

Answer \_\_\_\_\_

## Video Quiz:

1. The dew point is the temperature at which water vapor \_\_\_\_\_.
2. When many droplets come together \_\_\_\_\_ form.
3. \_\_\_\_\_ clouds are white, puffy, fair weather clouds.
4. Cirrus clouds are made of crystals of \_\_\_\_\_.
5. \_\_\_\_\_ is moisture that falls from clouds.
6. A \_\_\_\_\_ tropical air mass is formed over warm oceans.
7. A boundary between two different air masses is a \_\_\_\_\_.
8. An incoming \_\_\_\_\_ front may produce windy, stormy weather.
9. Tornadoes are very intense areas of swirling \_\_\_\_\_ pressure.
10. \_\_\_\_\_ are scientists who study the weather.

# The Great Ice Storm of 1998



In early January 1998, there was stagnation of a weather pattern over northeastern North America which resulted in the massive accumulation of ice on trees and electric pole lines. This freezing rain was caused by the overriding of warm air over cold air masses. A fine rain froze when falling from the warm air mass to the ground while passing through the cold, freezing air. This caused the rain to freeze and accumulate on any object with which it came in contact. The phenomenon lasted about one week.

This storm, unlike any other in living memory, affected 4.3 million acres in the Adirondack area of upper New York State. It also affected an extensive area within Vermont, New Hampshire, and Maine. In addition, it devastated the southern part of Quebec, Canada, including the city of Montreal.

The ice was 3-4 inches (7.5-10 cm) thick on trees and power lines in the whole area. The massive weight of the ice caused the destruction of countless, valuable trees. The damage to the trees caused the loss of future timber products, but also caused fear of fire in the future from the dead branches and logs. Also, the damage changed the woodland habitat, so that certain types of wildlife benefitted while others suffered due to changes in the environment. The effect of the storm on trees, forests, land, and wildlife could last for fifty years according to some early estimates.

The ice accumulation had an immediate effect on power transmission and loss of highway access due to fallen trees and wires. Many farms in this large area lost power to run their machinery and milking equipment. If the farms did not have access to auxiliary generators for electricity, they could not farm and milk the cows. This caused many farms to fail financially and lose their cows to production. Thus many farms went out of business. With the loss of farms, the land started to resort back to forest, affecting the local economy and also the distribution of wildlife.

In the Province of Quebec, in addition to the lost forest and farms, a major problem arose from loss of electricity to the city of Montreal. This large city, the capital of the Province, was without power for one month. The problem was so serious that at one time, the authorities considered ordering the evacuation of the city. The evacuation was considered because of the lack of services which are needed for life in the city environment. Can you imagine life in a city without heat, lights, water, traffic control, and communication for one month, in freezing January temperatures? Generally people look upon a loss of electricity for a few hours as a major inconvenience. Our whole life revolves around electricity and the convenience it provides.



## Ice Storm (cont)

This storm caused the destruction of 3,100 steel and wood power towers and 116 high voltage transmission lines from the Hydro Quebec Power System on Hudson Bay, another indication of the scope of the storm.

Hopefully this will give some idea of the possible power, duration and destructive effect of an ice storm. This in turn is a result of the orientation of cold and warm air masses, and the stalled movement of this weather phenomenon.

### Questions

1. Explain how freezing rain occurs. Draw a picture to explain the weather phenomenon.
2. Draw a map of the affected area of the storm.
3. List the ways we use and are dependent upon electricity.
4. Discuss how the destruction of a forest by ice can affect animals.
5. Describe how a storm like this might affect your life.